REMARKS

The applicants appreciate the consideration provided by the examiner in the office action mailed January 28, 2009. The status of each presented in this paper is as follows: claim 1 is currently amended, claims 2-18 are original, and claims 19 and 20 are new. The applicants respectfully request reconsideration and allowance of this application in view of the above amendments and the following remarks.

35 U.S.C. §101

Claims 1-18 stand rejected under 35 U.S.C. §101 as reciting non-statutory subject matter. Specifically, the action alleges that the method recited in claim 1, as originally submitted, neither transform an article into a different state nor is positively tied to another statutory category as is required by *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

While claim 1 originally ties the recited method to an image sensor and an evaluation unit, and although the recited method transforms optical radiation into partial images, claim 1 is amended herein to further recite that the method is implemented on an image producing device that includes the image sensor and the evaluation unit. The method steps are thus further tied to the image producing device, and as such, the applicants assert that claim 1 is statutory. The applicants respectfully request the withdrawal of the rejection under 35 U.S.C. §101.

35 U.S.C. §103(a)

Claims 1-18 stand rejected under §103(a) as being obvious over Elabd, U.S. Patent 5,272,535 ("Elabd") in view of Yee et al., U.S. Patent 6,322,216 ("Yee"). The applicants assert however that independent claim 1 is distinguishable over the combined teaching of Elabd and Yee. The applicants thus respectfully traverse the rejection under §103(a) as now described.

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Elabd discloses an imaging device that is capable of performing asynchronous internal image preprocessing. See Elabd at page 2, lines 8-10. The device includes a CCD-sensor comprising an array 12 of sensor cells 14. The imaging device generates different frames composed of pixels which are output to a computer 32 and a display to allow video monitoring. See Elabd at FIGS. 1A, 3, and 4E. It should be noted that a storage register 52 is provided within each cell 14 that allows for a wide range of data manipulation capabilities. This is useful for tracking movement of, and looking at, moving objects. See Elabd at column 6, lines 40-52.

However, independent claim 1 of the present application recites a method for detecting a characteristic of at least one object (e.g. 28, 56, 68), in which the characteristic of the object is determined (e.g. E11, E12, E13, E21) in each case *from the values that are assigned to a partial image* (e.g. T1, T2, 32, 34, 36, 48, 78, 90, 94). Accordingly, a very fast and reliable detection of the characteristic is obtained. See the applicants' original specification at page 2, lines 4 to 7 and lines 19 to 25.

Elabd does not disclose that the italicized feature above, that is to say the characteristic of an object in Elabd is not determined in each case from values that are assigned to a frame. Although Elabd describes a sensor that can read out frames and perform simple pre-processing such as filtering, transformations and interlacing, Elabd is simply silent concerning the evaluation of a characteristic from each frame. This fact is acknowledged in the office action at the bottom of page 3.

The office action cites Yee as providing the missing feature of Elabd. Yee discloses an eye tracking system with two cameras 13 based on a CCD-sensor. Both cameras 13 generate complete image signals which are transmitted to tracking processing modules 15. The modules

15 may be interpreted as calculating a characteristic out of the image signals from both cameras 13. See Yee at column 5, lines 48 to 55.

Thus Yee in fact actually fails to provide the feature missing from Elabd. By way of explanation, the present application recites that the characteristic is determined from a partial image from an image sensor, after which the partial images are combined to form a "total image". In contrast, at best Yee discloses determining a characteristic by combining image signals obtained from two different cameras or sensors, the image signals each being a total image achieved by a camera from a different angle with respect to the object, at the same time. As the two images are gained at the same time they are not partial images to be combined as a total image because they provide the same content of information. The applicants thus submit that Yee fails to disclose the determination of a characteristic from values assigned to a *partial image*.

To establish a prima facie case of obviousness, the prior art references when combined must teach or suggest all the claim features. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). As described above, the combination of Elabd and Yee does not disclose every feature of amended claim 1. As such, the applicants respectfully assert that the office action fails to establish a *prima facie* case of obviousness as to claim 1. Claim 1 is submitted to be allowable for at least this reason.

Claims 1 is submitted to be allowable over Elabd in view of Yee for at least another reason. A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. That is to say, there must additionally be a reason why one of ordinary skill in the art would modify a reference or combine reference teachings to obtain the claimed invention. See *KSR International Co. v Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007). Even if it were assumed that Elabd and Yee

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disclose all the feature of claim 1 (which it is not, as discussed above), there would still be no reason for one ordinarily skilled in the art to combine the reference teachings. Elabd and Yee are quite different and contradictory towards each other.

Specifically, Elabd discloses generating two frames that are combined into a full image which is then output. See Elabd at column 4, lines 21 to 29. Rather than disclosing partial images, Yee discloses generating two full, complete images, each image being from a different camera angle. The two images cannot be combined as partial images, because both images contain complete information. See Yee at column 5, lines 48 to 50. Thus, an ordinary practitioner would not have a reason to combine Yee with Elabd because the two total images generated in Yee from different camera angles would together provide information related to a characteristic of the object. There would be no reason to use just a fragment of such an image and to combine it with another partial image in Elabd. There is simply no reason to combine these references, and claim 1 is allowable for at least this additional reason.

Newly added independent claim 19 is somewhat similar to claim 1 but specifically recites a method for detecting a characteristic of at least one object in which an optical radiation influenced by the object is fed to an image sensor such that *a first partial image is recorded at a first instant and at least a second partial image is recorded at a second successive instant by the image sensor*. Support for the features of this claim is found in the applicants' specification at least on page 20, lines 32-33 and page 21, lines 1-2. The applicants assert that for similar reasons described above related to claim 1, Elabd in view of Yee fails to disclose that the characteristic of the object is determined in each case from the values that are assigned to the pixels of the first partial image and the second partial image. Additionally, the applicants respectfully assert that Elabd and Yee combined fail to disclose the italicized feature above.

Elabd does not disclose that frames are recorded at successive instants. Rather, Elabd discloses performing a read-out of a single image merely as frames consisting of even rows and odd rows to generate a full image. See Elabd for example at column 4, lines 21 to 30. Further, and as discussed above with respect to claim 1, Yee fails to teach partial images entirely. The applicants thus assert that the combination of references fails to disclose the new features recited by claim 19 and that the claim is allowable for at least this additional reason. As well, and also as described above, there is simply no reason to combine Elabd with Yee.

Newly added independent claim 20 is somewhat similar to claim 1 but specifically recites a method for detecting a characteristic of at least one object in which an optical radiation influenced by the object is fed to an image sensor such that *an integration of a first partial image, wherein charges reduced by an action of light are summed in the pixels of the image sensor that are assigned to the first partial image, begins at a first instant and an integration of a second partial image, wherein charges reduced by an action of light are summed in the pixels of the image sensor that are assigned to the second partial image, begins at a second instant.* Support for the features of this claim is found in the applicants' specification at least on page 15, line 34 through page 16, line 2 and page 165, lines 23-26. The applicants assert that for similar reasons described above related to claim 1, Elabd in view of Yee fails to disclose that the characteristic of the object is determined in each case from the values that are assigned to the pixels of the first partial image and the second partial image. Additionally, the applicants respectfully assert that Elabd fails to disclose the italicized feature above.

Elabd does not disclose that the frames disclosed therein are integrated at different or successive instants. As discussed above, Elabd discloses performing a read-out of a single image merely as frames consisting of even rows and odd rows to generate a full image. See Elabd for

example at column 4, lines 21 to 30. Further, and as discussed above with respect to claim 1, Yee fails to teach partial images entirely. The applicants thus assert that the combination of references fails to disclose the new features recited by claim 20 and that the claim is allowable for at least this additional reason. As well, and also as described above, there is simply no reason to combine Elabd with Yee.

<div align="center">Dependent Claims</div>

It should be noted that claims 2-18 depend either directly or indirectly from claim 1. As such, the applicants respectfully assert that claims 2-18 are also allowable over Elabd combined with Lee based at least on their dependencies from claim 1 and/or for the further features recited therein. The applicants will now address a few of the dependent claims specifically.

Claim 2 recites that *the determination of the characteristics from values of a partial image is performed simultaneously at least in part with the reading-out of a following partial image*. As discussed above, Elabd does not disclose the feature of determining a characteristic based on the values of the partial image. Therefore, Elabd cannot disclose making the determination simultaneous to the reading-out of a following or subsequent partial image.

As discussed above, Yee does not disclose the use of partial images. It should also be noted that there is not a timing factor involved in the generation of the two complete images disclosed in Yee. In fact the opposite is true. The functional principle of the device in Yee is that both a generation and a read-out of the two pictures images are simultaneous to obtain a properly working tracking system. Such a system is essential for the laser surgery device and the health of a patient. See Yee at column 11, lines 38 to 57. Thus Elabd combined with Yee fails

to disclose each feature of claim 2. Claim 2 is submitted to be allowable for at least this additional reason.

Claim 6 recites that the partial images are assembled in each case from a number of only partially read-out pixel rows of the image sensor. However, both Elabd and Yee disclose CCD-sensors, the principle of operation of which precludes a partially read-out pixel row. This is particularly clear when noting that in Elabd, all the sensor cells 14 of one row of column N share one vertical CCD register 18 for their transfer of data to a frame storage register 20. See Elabd at column 3, lines 46 to 56 and FIG. 2. A full frame of image data is thus registered and recorded by the image array before transferring the data. Claim 22 thus recites the novel subject matter related to partially read-out pixel rows. Claim 22 is submitted to be allowable for at least this additional reason.

Claim 14 recites that the read-out sequence of a partial image is controlled with the aid of a characteristic of the object determined from a preceding partial image. As discussed herein, Elabd does not disclose a determination of the characteristic of the object based on values assigned to a partial image, so it would be impossible for Elabd to disclose changing a read-out sequence of a frame based on the characteristic of an object previously determined from a preceding frame. Thus claim 14 recites a novel feature that would require processing a frame or partial image to determine the characteristic of the object and making a decision regarding the read-out sequence of subsequent partial images. Although not claimed, further reprogramming of the sensor for a new read-out would also be required. Elabd fails to disclose these steps as does Yee, which as discussed above, does not even disclose partial images. Claim 23 is thus submitted to be allowable for the further features recited therein.

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<u>Conclusion</u>

In view of the foregoing, the applicants submit that this application is in condition for allowance. A timely notice to that effect is respectfully requested. If questions relating to patentability remain, the examiner is invited to contact the undersigned by telephone. If there are any problems with the payment of fees, please charge any underpayments and credit any overpayments to Deposit Account No. 50-1147.

Respectfully submitted,

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